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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/759,194

01/20/2004

Takeshi Nogami

SON-1908/DIV

7751

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7590

08/08/2005

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EXAMINER

TOLEDO, FERNANDO L

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/759,194

Applicant(s)

NOGAMI ET AL.

Examiner

Fernando L. Toledo

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/655,833.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 19 – 48 are rejected under 35 U.S.C. 102(a) as being anticipated by Uzoh et al. (U. S. Patent 5,911,619 A).

2. In re claims 19, 31 and 41; Uzoh discloses in the U. S. Patent 5,911,619 A; figures 1A – 17B and related text, a polishing tool having a polishing surface and having conductivity (Figure 7); a polishing tool rotating and holding means for rotating said polishing tool about a predetermined axis of rotation and holding the same (68); a rotating and holding means for holding a polishing object and rotating the same about a predetermined axis of rotation (62); a movement and positioning means for moving and positioning said polishing tool to a target position in a direction facing said polishing object (Figure 7); a relative moving means for making the polished surface of said polishing object and the polishing surface of said polishing tool relatively move along a predetermined plane (74); an electrolyte feeding means for feeding an electrolyte onto the polished surface of said polishing object; and an electrolytic current supplying means for supplying an electrolytic current flowing through said polishing tool through said electrolyte from said polished surface by using the polished surface of said polishing object as an anode and said polishing tool as a cathode (Figure 7).

Art Unit: 2823

3. In re claims 20 and 32; Uzoh discloses further comprising a polishing agent feeding means for feeding a chemical polishing agent including a polishing abrasive on to the polished surface of the polished object (72).
4. In re claim 21, Uzoh discloses wherein said electrolytic current supplying means comprises: a current supplying means arranged to be able to be brought into contact or proximity with the polished surface of said polished object and supply current to the polished surface using the polished surface of the polished object as an anode, and a DC power supply supplying a predetermined DC power between said current supplying means and said polishing tool (Column 5, Lines 10 – 20).
5. In re claim 22, Uzoh discloses wherein said DC power supply outputs a pulse-like voltage of a predetermined period (Column 5, Lines 10 – 20).
6. In re claim 23, Uzoh discloses wherein said polishing tool comprises a wheel-shaped conductive member and one annular end face of said member comprises a polishing surface, and said current supplying means comprises a conductive electrode plate provided at the inside of the polishing tool away from the polishing tool, held by said rotation and holding means, and rotated along with said polishing tool (Figure 11C)
7. In re claim 24, Uzoh discloses wherein said electrode plate comprises a scrub member having a surface for scrubbing the polished surface at the side facing the polished surface of the polished object (66)
8. In re claim 25, Uzoh discloses wherein said scrub member is formed from a material which absorbs the electrolyte and the chemical polishing agent including the polishing abrasive and able to supply a current and supplies the electrolyte and/or chemical polishing agent supplied

from said electrode plate side to the polished surface of said polished object (Column 5, Lines 35 – 40).

9. In re claim 26, Uzoh discloses wherein said polishing tool is held by a conductive member connected with said rotation and holding means and is supplied with current through a conductive brush contacting said rotating conductive member (Figure 11C).

10. In re claim 27, Uzoh discloses wherein said electrode plate comprises a metal more precious than the electrolyzed metal formed on the polished surface of the polished object (Column 5, Lines 35 – 40).

11. In re claim 28, Uzoh discloses further comprising a current detecting means for detecting a value of an electrolytic current flowing from the polished surface of said polished object to said polishing tool (Figure 13).

12. In re claim 29, Uzoh discloses further comprising a resistance value detecting means for detecting an electrical resistance between said electrode plate and said polishing tool through the polished surface of said polished object (Figure 13).

13. In re claim 30, Uzoh discloses further comprising a control means for controlling a position of a facing direction of said polishing tool and said polished object so that the value of the electrolytic current becomes constant based on a detection signal of said current detecting means (Figure 13).

14. In re claim 33, Uzoh discloses pushing the polishing surface of a conductive polishing tool and the surface of the polishing object with a metal film formed on at least the surface or an inner layer against each other while interposing the electrolyte therebetween; supplying the electrolytic current flowing from the surface of said polishing object to said polishing tool

Art Unit: 2823

through said electrolyte by using said polishing tool as a cathode and the surface of said polishing object as an anode, making said polishing tool and said polishing object move relatively along a predetermined plane while rotating the two; and flattening the metal film formed on said polishing object by electrolytic composite polishing combining electrolytic polishing by the electrolyte and mechanical polishing by the polishing surface (Figure 7).

15. In re claims 34 and 42, Uzoh further includes the step of interposing a chemical polishing agent containing a polishing abrasive together with said electrolyte between the polishing surface and the surface of the polished object and flattening the metal film formed on the polished object by electrolytic composite polishing combining electrolytic polishing by said electrolyte and chemical mechanical polishing by said polishing surface and said polishing agent (figure 7).

16. In re claim 35, Uzoh discloses wherein said polished object comprises a stack of a plurality of films comprised of different materials, and the current flowing from the surface of the polished object to the polishing tool through the electrolyte, changing in response to differences in the electrical characteristics of the materials of the films, is monitored and the progress in the polishing is managed based on the magnitude of the electrolytic current (Figures 5 – 7).

17. In re claim 36, Uzoh discloses further including the step of supplying a pulse-like voltage of a predetermined period between the polishing tool and the surface of the polished object to supply said electrolytic current (Column 5, Lines 10 – 20).

18. In re claim 37, Uzoh discloses further including the step of bringing an electrode member into proximity or contact with the surface of the polished object supplied with the electrolyte to supply current to the surface of the polished object (Figure 7).

19. In re claim 38, Uzoh discloses further including the step of supplying current to the metal film formed on said polished object while making said electrode member rotate along with said polishing tool and making it move relatively with respect to the polished object (Figure 7).

20. In re claim 39, Uzoh discloses further including the step of managing the progress of the polishing of the polished object based on the magnitude of the electrical resistance between said electrode member and said polishing tool through the surface of the polished object (Figure 13).

21. In re claim 40, Uzoh discloses further including the step of positively charging the polishing abrasive contained in the polishing agent (Figure 7).

22. In re claim 43, Uzoh discloses wherein said passivation film comprises of an oxide film formed by oxidizing the surface of said metal film (Figures 5 and 6).

23. In re claim 44, Uzoh discloses wherein said passivation film forms a film comprised of a material exhibiting an action of inhibiting an electrolytic reaction of the metal comprising said metal film on the surface of said metal film (Figure 5 and 6).

24. In re claim 45, Uzoh discloses wherein said passivation film is higher in electrical resistance and lower in mechanical strength compared with the metal film (Figure 5 and 6).

25. In re claim 46, Uzoh discloses further including the step of bringing an electrode member into proximity or contact with the surface of the metal film to supply current to the surface of the metal film (Figure 7).

26. In re claim 47, Uzoh discloses further including the step of managing the progress of the polishing based on the magnitude of the electrical resistance between said electrode member and said polishing tool (Figure 13).

Art Unit: 2823


27. In re claim 48, Uzoh discloses further including the step of positively charging the polishing abrasive contained in the polishing agent (Figure 7).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fernando L. Toledo whose telephone number is 571-272-1867. The examiner can normally be reached on Mon-Thu 7am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Fernando L. Toledo
Examiner
Art Unit 2823

flt
7 August 2005